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(54) SYSTEM AND METHOD FOR RECEIVING BROADCAST AUDIO/VIDEO WORKS AND FOR ENABLING A CONSUMER TO PURCHASE THE RECEIVED AUDIO/VIDEO WORKS

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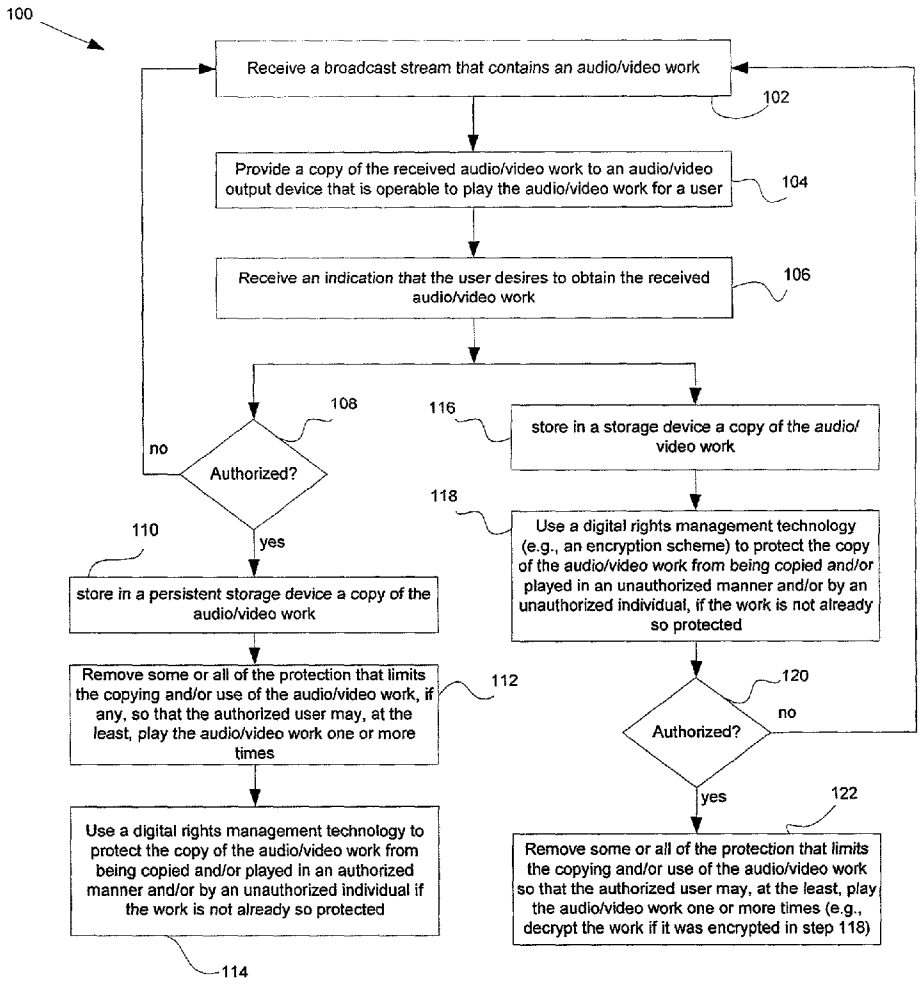
(57) **ABSTRACT**

A system and method for purchasing broadcast audio and/or video (audio/video) works. According to one embodiment, the system includes a data stream processor that receives a broadcast audio/video data stream and produces from the broadcast audio/video data stream a first audio/video output data stream and a second audio/video output data stream, wherein the broadcast audio/video data stream contains information corresponding to an audio/video work and the first audio/video output stream is in a format that can be recognized and processed by conventional audio/video reproducing equipment; a storage device that stores data included in the second audio/video output data stream, wherein the data corresponds to the audio/video work; and a user interface that enables a user of the system to input to the system an indication that the user desires to purchase the audio/video work.



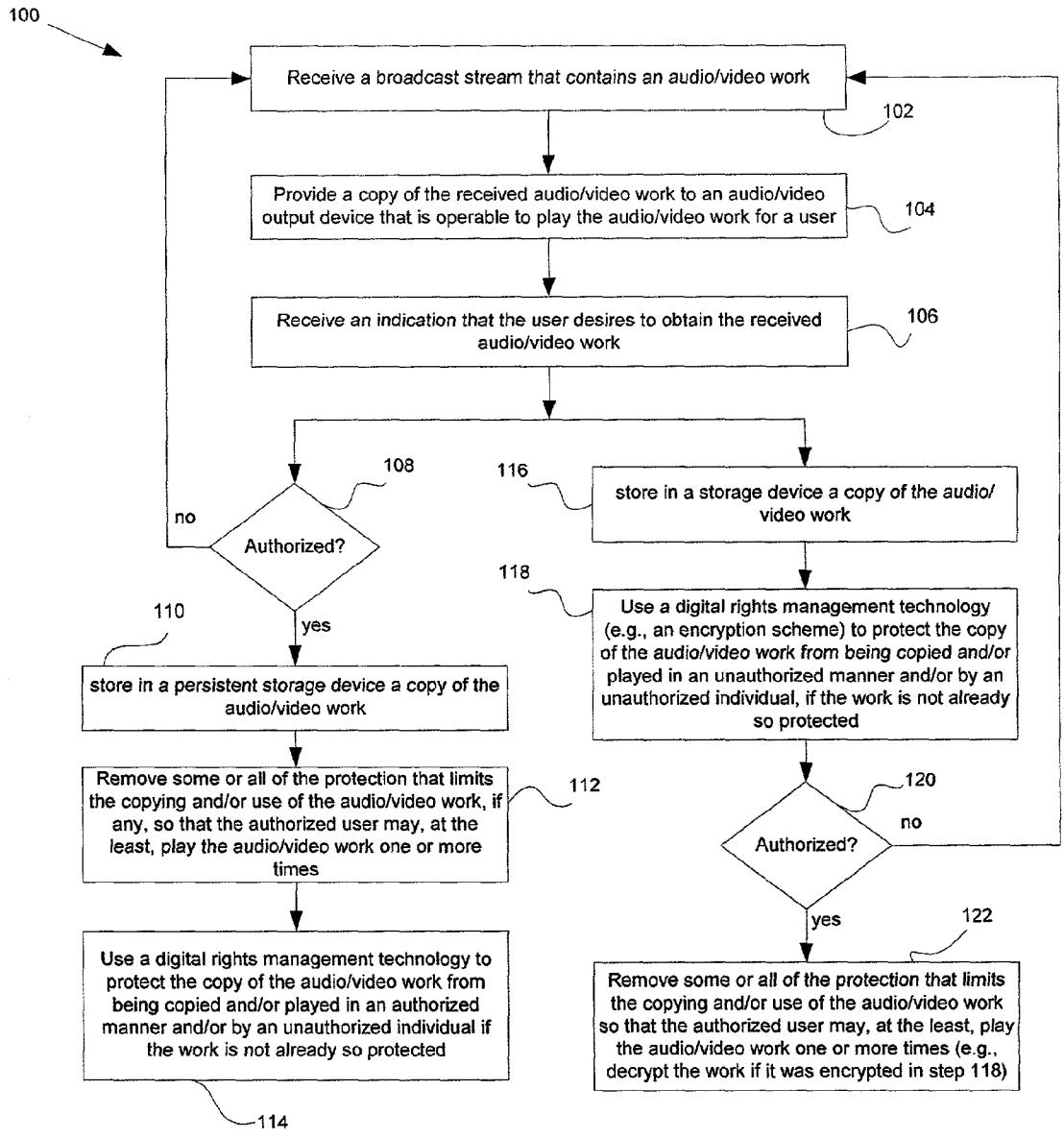

100
Receive a broadcast stream that contains an audio/video work
102
Provide a copy of the received audio/video work to an audio/video output device that is operable to play the audio/video work for a user
104
Receive an indication that the user desires to obtain the received audio/video work
106
108
Authorized?
no
yes
110
store in a persistent storage device a copy of the audio/video work
Remove some or all of the protection that limits the copying and/or use of the audio/video work, if any, so that the authorized user may, at the least, play the audio/video work one or more times
112
Use a digital rights management technology to protect the copy of the audio/video work from being copied and/or played in an authorized manner and/or by an unauthorized individual if the work is not already so protected
114
116
store in a storage device a copy of the audio/video work
118
Use a digital rights management technology (e.g., an encryption scheme) to protect the copy of the audio/video work from being copied and/or played in an unauthorized manner and/or by an unauthorized individual, if the work is not already so protected
120
Authorized?
no
yes
122
Remove some or all of the protection that limits the copying and/or use of the audio/video work so that the authorized user may, at the least, play the audio/video work one or more times (e.g., decrypt the work if it was encrypted in step 118)

FIG. 1

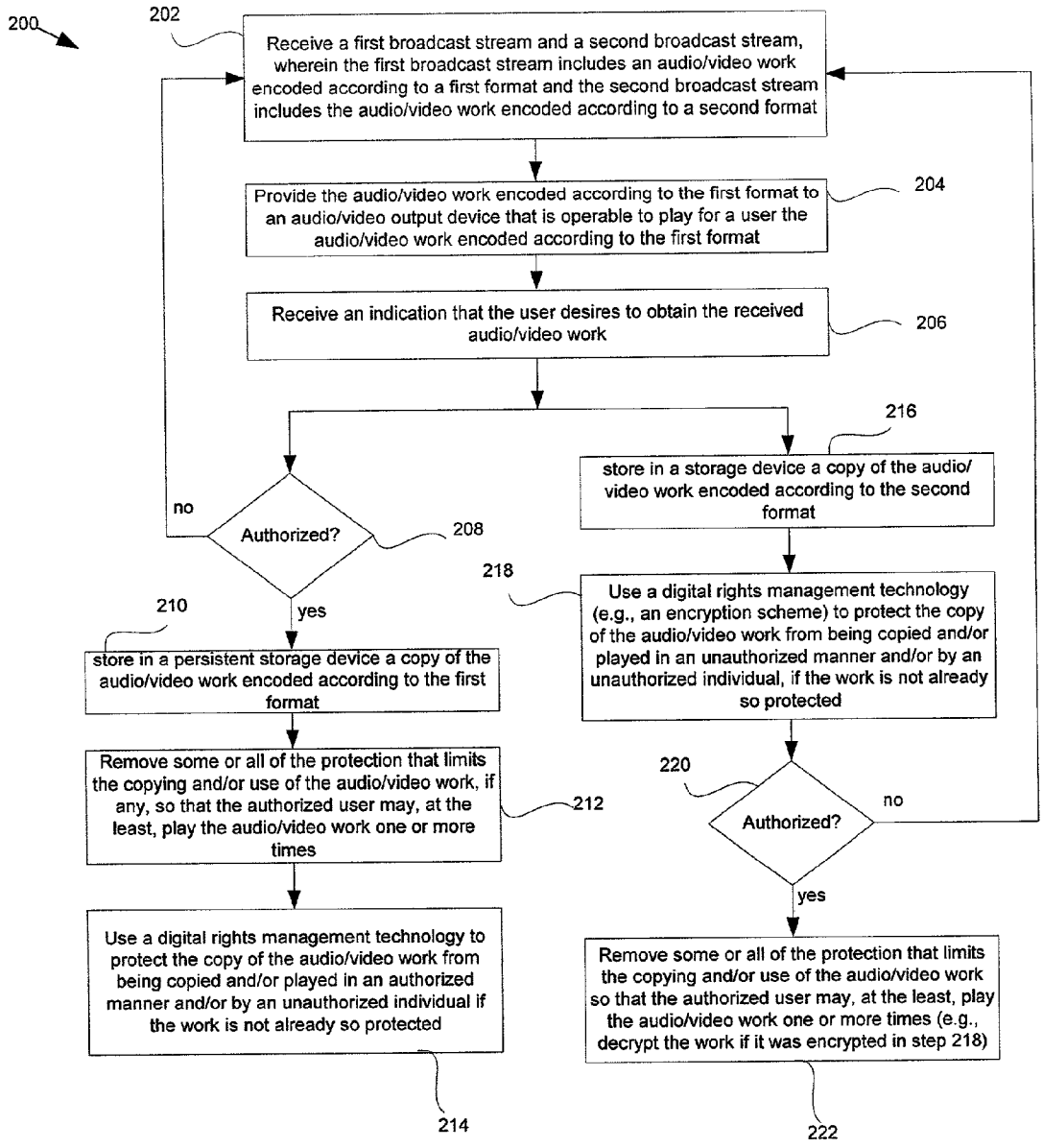

200
202
Receive a first broadcast stream and a second broadcast stream, wherein the first broadcast stream includes an audio/video work encoded according to a first format and the second broadcast stream includes the audio/video work encoded according to a second format
Provide the audio/video work encoded according to the first format to an audio/video output device that is operable to play for a user the audio/video work encoded according to the first format
204
Receive an indication that the user desires to obtain the received audio/video work
206
Authorized?
208
no
yes
store in a persistent storage device a copy of the audio/video work encoded according to the first format
210
Remove some or all of the protection that limits the copying and/or use of the audio/video work, if any, so that the authorized user may, at the least, play the audio/video work one or more times
212
Use a digital rights management technology to protect the copy of the audio/video work from being copied and/or played in an authorized manner and/or by an unauthorized individual if the work is not already so protected
214
store in a storage device a copy of the audio/video work encoded according to the second format
216
Use a digital rights management technology (e.g., an encryption scheme) to protect the copy of the audio/video work from being copied and/or played in an unauthorized manner and/or by an unauthorized individual, if the work is not already so protected
218
Authorized?
220
no
yes
Remove some or all of the protection that limits the copying and/or use of the audio/video work so that the authorized user may, at the least, play the audio/video work one or more times (e.g., decrypt the work if it was encrypted in step 218)
222

FIG. 2

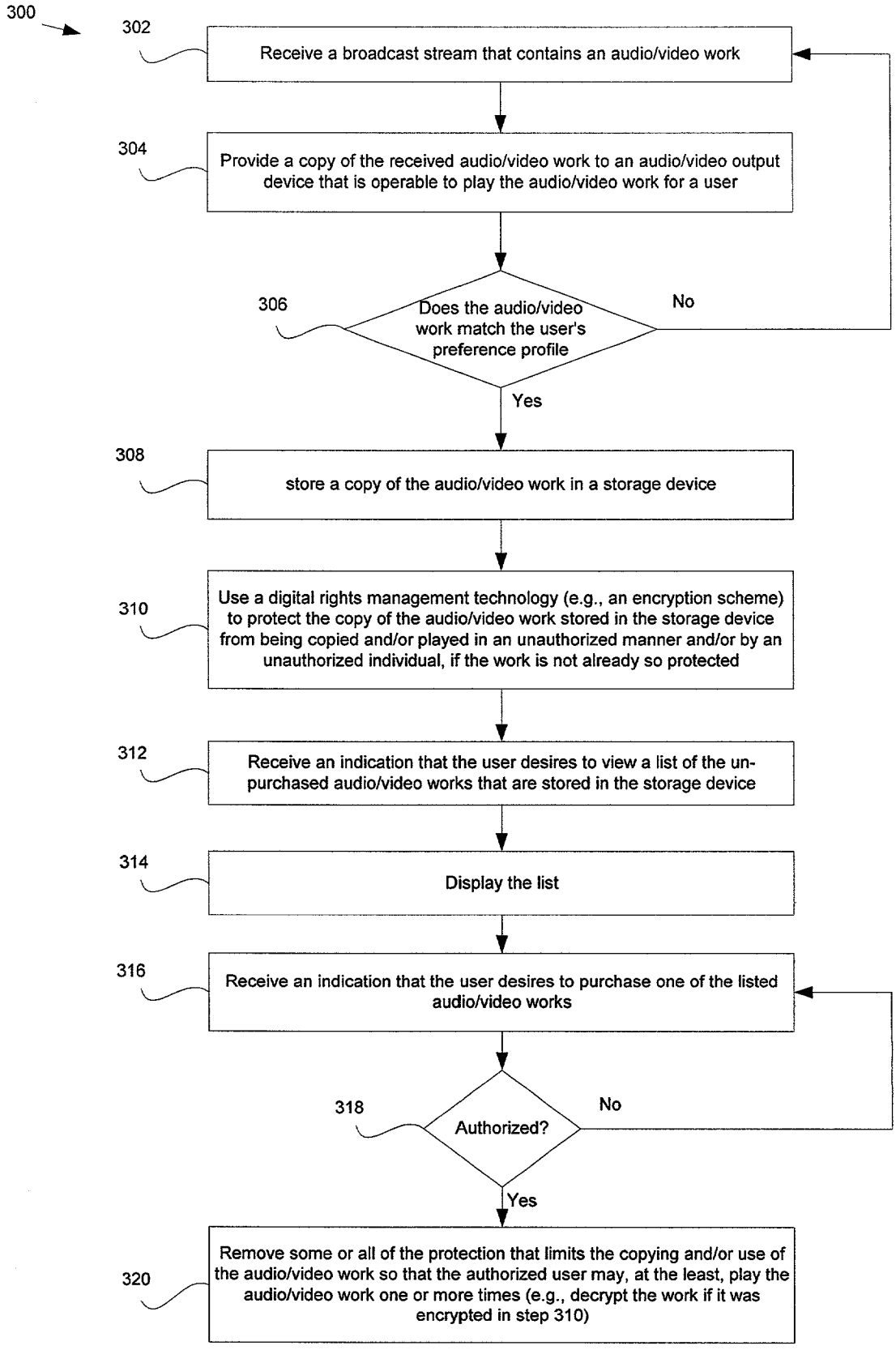

300
302
Receive a broadcast stream that contains an audio/video work
304
Provide a copy of the received audio/video work to an audio/video output device that is operable to play the audio/video work for a user
306
Does the audio/video work match the user's preference profile
No
Yes
308
store a copy of the audio/video work in a storage device
310
Use a digital rights management technology (e.g., an encryption scheme) to protect the copy of the audio/video work stored in the storage device from being copied and/or played in an unauthorized manner and/or by an unauthorized individual, if the work is not already so protected
312
Receive an indication that the user desires to view a list of the un-purchased audio/video works that are stored in the storage device
314
Display the list
316
Receive an indication that the user desires to purchase one of the listed audio/video works
318
Authorized?
No
Yes
320
Remove some or all of the protection that limits the copying and/or use of the audio/video work so that the authorized user may, at the least, play the audio/video work one or more times (e.g., decrypt the work if it was encrypted in step 310)

FIG. 3

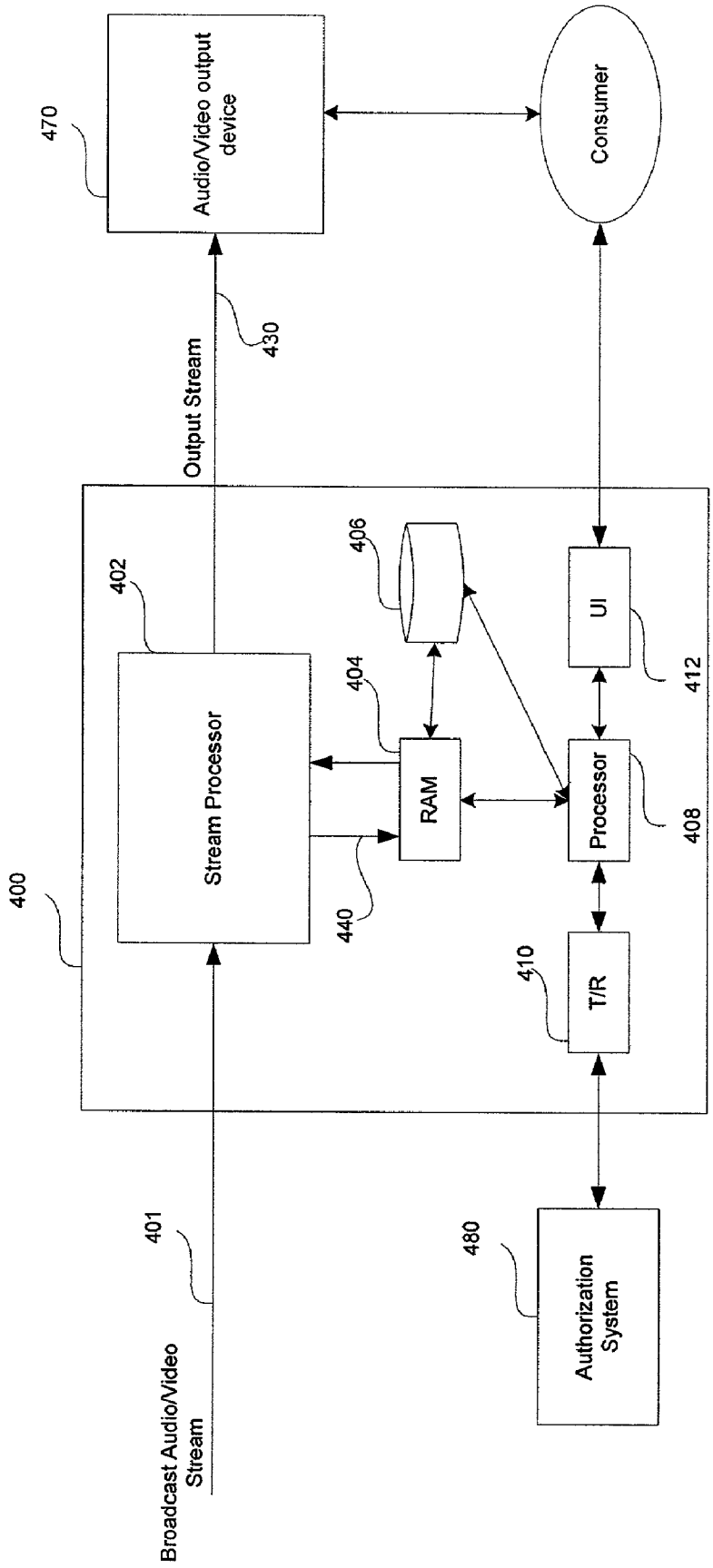

Audio/Video output device
470
Consumer
Output Stream
430
402
406
UI
412
Stream Processor
404
RAM
Processor
408
400
440
410
T/R
401
480
Authorization System
Broadcast Audio/Video Stream

FIG. 4

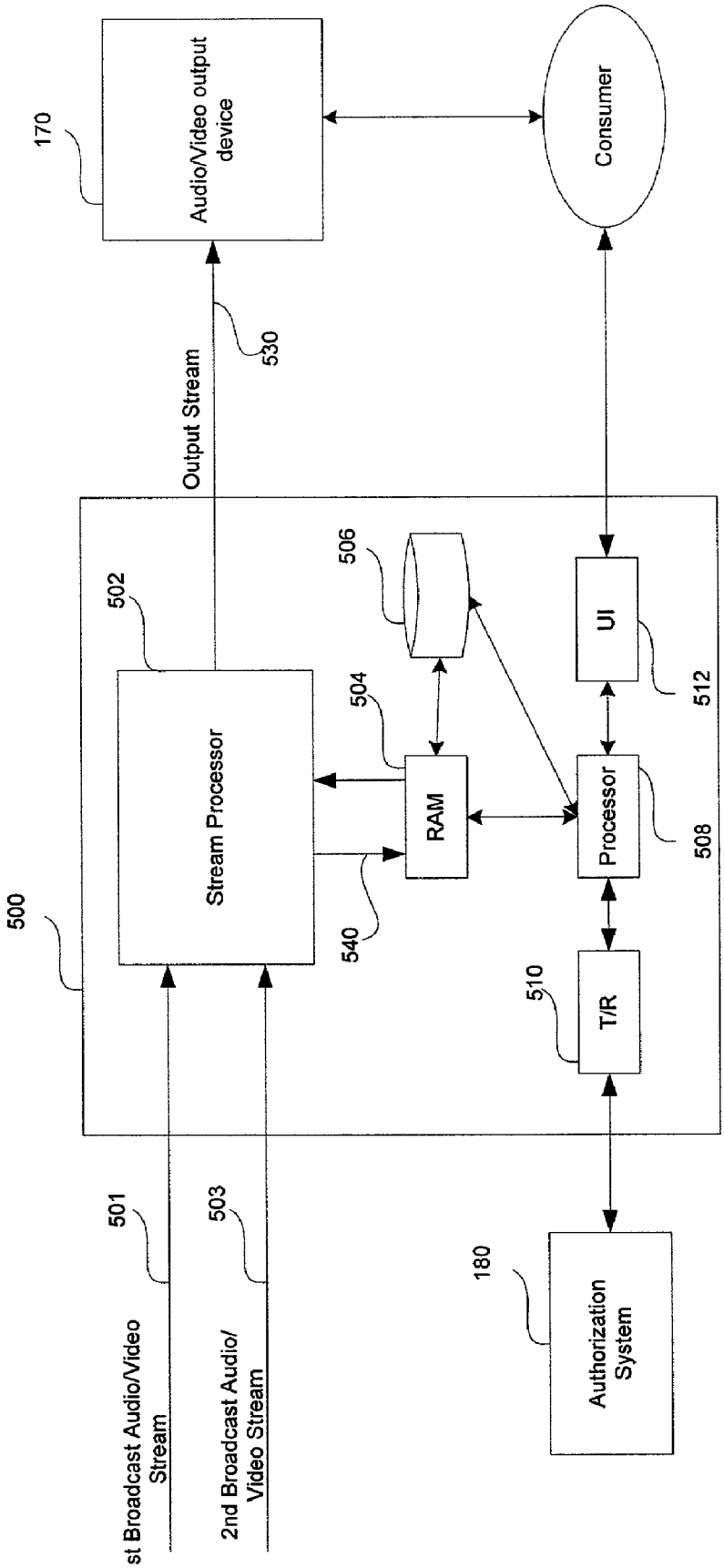

170
Audio/Video output device
Consumer
530
Output Stream
502
Stream Processor
506
504
RAM
UI
512
Processor
508
500
540
510
T/R
501
1st Broadcast Audio/Video Stream
503
2nd Broadcast Audio/ Video Stream
180
Authorization System

FIG. 5

SYSTEM AND METHOD FOR RECEIVING BROADCAST AUDIO/VIDEO WORKS AND FOR ENABLING A CONSUMER TO PURCHASE THE RECEIVED AUDIO/VIDEO WORKS

[0001] This application claims the benefit of U.S. Provisional Patent Application No. 60/238,913, filed Oct. 10, 2000, which is incorporated herein in its entirety by this reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention is generally related to electronic commerce, and, more specifically, to a system for enabling the purchase of a broadcast audio and/or video work.

[0004] 2. Discussion of the Background

[0005] A song, or another type of work (e.g., a video), that is broadcast to the public, through radio stations, satellite systems, cable television systems, the Internet, and other like systems, often stimulates a desire in a consumer who is receiving the broadcast to purchase the song (or other work) being broadcast. In the case of a song, to satisfy this impulsive desire to purchase, the consumer must (1) know the artists or title of the song and (2) travel to a retail outlet, such as a record store, video store, or department store, or log onto a web site that sells music, to purchase a compact disc (CD) containing the song.

[0006] There are several disadvantages with this approach to buying media. For instance, for music, at the time the desire to purchase the music is stimulated, the consumer may not have the time nor the opportunity to travel to a retail outlet or log onto a web site to purchase the music. Additionally, there is no guarantee that the consumer will know the artist and/or title of the music he or she desires to buy. Furthermore, it is often not possible to purchase a single song. For example, in most cases a desired song is only distributed on a CD (or other storage media) on which a number of other songs from the artist are stored.

[0007] What is desired, therefore, is a system to enable a consumer to purchase a song (or other work) at the time the desire to purchase the work is stimulated or at a later time. Additionally, it may be desired to provide the consumer with instant access to the purchased work.

SUMMARY OF THE INVENTION

[0008] Embodiments of the present invention provide a system and methods for purchasing broadcast audio and/or video (hereafter "audio/video") works, or other works, including textual works (such as digital books etc), still images, software, etc. According to one embodiment, the system includes a data stream processor, a persistent data storage device, a user interface, and a processing unit.

[0009] The data stream processor functions to receive and process a broadcast audio/video data stream (i.e., signal) that, at a given point in time, may include information corresponding to an audio/visual work, such as a musical selection (e.g., a song) or video (e.g., music video). The data stream processor produces from the broadcast stream a first audio/video output data stream and a second audio/video output data stream. Each of the output streams contains the same information (i.e., audio/video work), but the information in each output stream may be formatted or encoded differently. For example, the information in the first audio/video output stream may be in a format that can be recognized and processed by conventional audio/visual reproducing equipment, such as a television (TV) or stereo system. The information in the second output stream may be in the same format as the information in the broadcast stream or first output stream or it can be encoded according to a different scheme altogether. As a specific example, for audio information, the information in the second output stream may be encoded according to the MP3, Real Audio, Windows Media™, or other like format.

[0010] Advantageously, the data in the second output stream is either temporarily buffered in a storage device (e.g., random access memory (RAM) or other similar volatile memory or flash memory useful for the temporary buffering of data) or stored on a persistent storage device, such as a hard disk or other like functioning storage means useful for storing data for long periods of time. In one embodiment, a digital rights management technology (for example, an encryption scheme) is used to protect the audio/video work that is temporarily buffered or stored in the storage device from unauthorized use and/or copying. That is, the audio/video work is copy and/or use protected. The audio/video work may be copy and/or use protected by the broadcaster that broadcasts the work or by the system.

[0011] The system enables a consumer to purchase or obtain the audio/video work contained in the signal being processed by the data stream processor. According to one embodiment, to make the purchase, the consumer simply sends a "buy" signal to the processing unit within the system. The consumer may accomplish this by selecting a particular push button or menu item provided by the system's user interface.

[0012] In one embodiment, upon receiving the buy signal, the processing unit communicates with an authorization system that verifies that the consumer is authorized to "purchase" the work. After it is determined that the consumer is authorized, the processing unit copies the work from the storage device into a file created on the persistent storage device within the system. If necessary, the processing unit will also disable some or all of the protection that limits the copying and/or use of the work so that the authorized consumer may, at the least, play the audio/video work one or more times. For example, if the work was protected by an encryption scheme the processing unit may decrypt the work. However, the processing unit may not disable all of the copy and/or use protection because the authorized consumer may only be authorized to copy and/or use the work in a limited manner.

[0013] Prior to or shortly after copying the work from the storage device onto the persistent storage device, the processing unit has the option of encoding the work according to a different encoding scheme. For example, if the data in the storage device is music data and is encoded according to the DOLBY AC-III format, then, prior to or shortly after storing the music data in the persistent storage device, the processing unit may convert the music data to the MP3 format, Windows Media format, or some other format that preferably provides data compression.

[0014] In another embodiment, after receiving the buy signal, the processing unit copies the purchased work from

the storage device onto the persistent storage device within the system. As described above, prior to copying the work from the storage device onto the persistent storage device, the processing unit has the option of encoding the work according to a different encoding scheme. However, an authorization system must first authorize the "purchase" before the consumer can access and use the work stored on the persistent storage device. Thus, in one embodiment, a digital rights management technology is used to protect the work stored on the persistent storage device from unauthorized copying and/or use so that the consumer will not be able to copy and/or use the work without first being authorized by the authorization system. The consumer may receive authorization from the authorization system whenever it is convenient for the consumer. In one embodiment, to become an authorized user of the work, the consumer can communicate with the authorization system using a standard telephone or using a personal computer and the Internet. In an embodiment where the work is protected using encryption, the authorization system provides a key to decrypt the work after the consumer is authorized.

[0015] Once the encoded information corresponding to the purchased work is stored on the persistent storage device and the authorization system has authorized the purchase (e.g., provided the consumer with a decryption key), the consumer can reproduce the audio/visual work one or more times at the consumer's will. For example, if the work is a sound recording, the consumer can use a sound recording system to play the sound recording. In this manner, the system provides a means for a consumer to "purchase" a broadcast audio/visual work at the time the work is being broadcast. Thus, if a consumer sees or hears a work that he or she would like to acquire, the consumer can immediately purchase the work without having to travel to a store or log onto the web and without even knowing the name of the work or the artist who created the work.

[0016] In yet another embodiment, the processing unit automatically stores on the persistent storage device the audio/video work being received and processed by the data stream processor. That is, all of the received audio/video works are stored in the persistent storage device, regardless of whether a user has sent a "buy" signal to the processor. Alternatively, the system may maintain a profile that is configurable by the user of the system. In this alternate embodiment, the processing unit stores in the persistent storage device only those broadcast works received and processed by the data stream processor that match the profile, regardless of whether a user has sent the "buy" signal. In either case, because the user has not been authorized prior to the works being stored in the persistent storage device, the processing unit preferably copy and/or use protects each work using a digital rights management technology, such as, for example, encryption.

[0017] These two embodiments allow the user to purchase a work days or weeks after it was received and processed by the data stream processor. But, to conserve storage space, at some point in time the "un-purchased" works are deleted from the persistent storage device. In this embodiment, upon receiving an indication that the user desires to purchase a work or to view a list of the un-purchased works, the processing unit presents to the user a list of the un-purchased works that are stored in the persistent storage device. If the user sees a work that he or she would like to buy, the user selects the work and then signals the processing unit that he or she wants to buy the selected work. The processing unit then communicates with the authorization system to verify that the user is able to purchase the work. If the user is authorized, the user will be given full or limited access and use of the work. That is, some or all of the copy and/or use protection is disabled from the work so that the user can listen to or watch the work at least one or more times as desired.

[0018] In yet another embodiment, the data stream processor is configured to receive and process two broadcast audio/video streams simultaneously. Both of the broadcasted streams contain information corresponding to the same audio/visual work. However, the information in each stream is encoded differently, and furthermore, the information in one of the streams may be copy and/or use protected. For example, in one embodiment where the broadcast streams are audio streams, the information in one stream may be encoded according to the Dolby Digital AC-III format, whereas the information in the other stream may be encoded according to a scheme that provides different compression, such as the MP3, Windows Media, or Real Audio format, and may also be encrypted. In this embodiment, the information encoded according to the Dolby AC-III format is processed and output to conventional audio/visual reproducing equipment, such as a television (TV) or stereo system, whereas the copy and/or use protected information encoded according to the MP3, Windows Media, or Real Audio format is temporarily stored in memory or stored in the persistent storage device.

[0019] As described above, if the consumer desires to buy an audio/visual work being received by the system or one that has automatically been stored in the persistent storage device, the consumer simply causes a "buy" signal to be sent to the processing unit within the system.

[0020] Further features and advantages of the present invention, as well as the structure and operation of various embodiments of the present invention, are described in detail below with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0021] The accompanying drawings, which are incorporated herein and form part of the specification, illustrate various embodiments of the present invention and, together with the description, further serve to explain the principles of the invention and to enable a person skilled in the pertinent art to make and use the invention. In the drawings, like reference numbers indicate identical or functionally similar elements. Additionally, the left-most digit(s) of a reference number identifies the drawing in which the reference number first appears.

[0022] FIGS. **1-3** are flowcharts illustrating various processes according to the present invention.

[0023] **FIG. 4** is a block diagram of a system for receiving broadcasted audio/video streams and for enabling a consumer to purchase the audio/video content being streamed according to one embodiment of the present invention.

[0024] **FIG. 5** is a block diagram of a system for receiving broadcasted audio/video streams and for enabling a consumer to purchase the audio/video content being streamed according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0025] **FIG. 1** is a flowchart illustrating a process **100**, according to one embodiment of the invention, for enabling a consumer to purchase a broadcast audio/video work. Process **100** begins in step **102**. In step **102**, a broadcast stream that contains an audio/video work is received. The audio/video work may be encoded according to one or more encoding schemes. For example, the audio portion of the audio/video work may be encoded according to the DOLBY AC-III encoding scheme.

[0026] Next (step **104**), the received audio/video work is provided to an audio/video output device that is operable to play the audio/video work for a consumer, thereby enabling the consumer to listen to and/or view the received audio/video work. Next (step **106**), an indication is received from the consumer that indicates that the consumer desires to obtain or purchase a copy of the audio/video work. After step **106**, in one embodiment, control flows to step **108**, and in another embodiment, control flows to step **116**.

[0027] In step **108**, an authorization system is used to determine whether the consumer is authorized to purchase the work. If the proper authorization is given to the consumer, then control passes to step, **110**, otherwise control passes back to step **102**. In step **110**, a copy of the audio/video work is stored in a persistent storage device. In one embodiment, the copy of the audio/video work stored in the persistent storage device is encoded according to one or more encoding schemes that are different from that which was used to encode the work for broadcast. That is, as broadcast, the work may have been encoded according to one scheme (e.g., DOLBY AC-III), but as stored on the persistent storage device the work is encoded according to a different scheme (e.g., Windows Media). After step **110**, control passes to step **112**.

[0028] In step **112**, some or all of the protection that limits the copying and/or use of the work, if any, is disabled so that the authorized consumer may, at the least, play the audio/video work one or more times. For example, as broadcast, the work may be protected from unauthorized copying and/or use using a digital rights management technology. If the work is not already protected from unauthorized copying/use, then, in step **114**, which is optional, a digital rights management technology is used to protect the work stored in the persistent storage device from being copied and/or used in an unauthorized manner or by an unauthorized individual.

[0029] In step **116**, the audio/video work is stored in a storage device. In one embodiment, the copy of the audio/video work stored in the storage device is encoded according to one or more encoding schemes that are different from that which was used to encode the work for broadcast. Next (step **118**), if the work is not already protected from unauthorized copying/use, then, a digital rights management technology is used to protect the work stored in the storage device from being copied and/or used in an unauthorized manner or by an unauthorized individual.

[0030] Next, in step **120**, an authorization system is used to determine whether the consumer is authorized to purchase the work. This step may occur hours, day, or weeks after step **106** is performed. If the proper authorization is given to the consumer, then control passes to step, **122**, otherwise control passes back to step **102**.

[0031] In step **122**, some or all of the protection that limits the copying and/or use of the work, if any, is disabled so that the authorized consumer may, at the least, play the audio/video work one or more times. For example, if the work was encrypted in step **118**, then in step **122** the work may be decrypted.

[0032] It should be noted that if the storage device used to store the work in step **116** is not a persistent storage device, then the work is moved from the storage device to a persistent storage device preferably at some point after the consumer is authorized.

[0033] **FIG. 2** is a flowchart illustrating a process **200**, according to another embodiment of the invention. Process **200** begins in step **202**. In step **202**, two broadcast streams are received at or about the same time. The first stream includes an audio/video work that is encoded according to an encoding format and the second stream includes the same audio/video work, but the audio/video work from the second stream is encoded according to an encoding format different from the one that is used to encode the work in the first stream. For example, the audio/video work included in the first stream may be DOLBY AC-III encoded, whereas the audio/video work included in the second stream may be Windows Media encoded. After step **202**, control passes to step **204**.

[0034] In step **204**, the audio/video work from the first stream is provided to an audio/video output device that is operable to play the audio/video work for a consumer, thereby enabling the consumer to listen to and/or view the received audio/video work. Next (step **206**), an indication is received from the consumer that indicates that the consumer desires to obtain or purchase a copy of the audio/video work. After step **206**, in one embodiment, control flows to step **208**, and in another embodiment, control flows to step **216**.

[0035] In step **208**, an authorization system is used to determine whether the consumer is authorized to purchase the work. If the proper authorization is given to the consumer, then control passes to step, **210**, otherwise control passes back to step **202**. In step **210**, the audio video work from the second stream is stored in a persistent storage device. After step **210**, control passes to step **212**.

[0036] In step **212**, some or all of the protection that limits the copying and/or use of the work, if any, is disabled. If the work is not already protected from unauthorized copying/use, then, in step **214**, which is optional, a digital rights management technology is used to protect the work stored in the persistent storage device from being copied and/or used in an unauthorized manner or by an unauthorized individual.

[0037] In step **216**, the audio/video work from the second stream is stored in a storage device. Next (step **218**), if the work is not already protected from unauthorized copying/use, then, a digital rights management technology is used to protect the work stored in the storage device from being copied and/or used in an unauthorized manner or by an unauthorized individual. Next (step **220**), an authorization system is used to determine whether the consumer is authorized to purchase the work. If the proper authorization is given to the consumer, then control passes to step, **222**, otherwise control passes back to step **202**. In step **222**, some or all of the protection that limits the copying and/or use of the work, if any, is disabled. And, if the storage device used

to store the work in step **216** is not a persistent storage device, then the work is moved from the storage device to a persistent storage device preferably at some point after the consumer is authorized.

[**0038**] **FIG. 3** is a flowchart illustrating a process **300**, according to another embodiment of the invention. Process **300** begins in step **302**, where a broadcast stream that contains an audio/video work is received. The audio/video work may be encoded according to one or more encoding schemes. Next (step **304**), the received audio/video work is provided to an audio/video output device that is operable to play the audio/video work for a consumer, thereby enabling the consumer to listen to and/or view the received audio/video work.

[**0039**] Next (step **306**), a determination is made as to whether the audio/video work matches the consumer's profile. If it does, control passes to step **308**, otherwise control passes back to step **302**. In one embodiment, step **306** is not performed at all and control passes from step **304** to step **308**. In step **308**, a copy of the received audio/video work is stored in a storage device. In one embodiment, the copy of the audio/video work stored in the storage device is encoded according to an encoding scheme that is different from that which was used to encode the work for broadcast.

[**0040**] Next (step **310**), if the work stored in the storage device is not already protected from unauthorized copying/use, then, a digital rights management technology is used to protect the work stored in the storage device from being copied and/or used in an unauthorized manner or by an unauthorized individual. Next (step **312**), an indication is received from the consumer that indicates that the consumer desires to view a list of the un-purchased audio/video works that are stored in the storage device. Next (step **314**), a list of the un-purchased audio/video works is displayed for the consumer. Next (step **316**), an indication is received from the consumer that indicates that the consumer desires to obtain or purchase a copy of one of the listed audio/video works. Next (step **318**), an authorization system is used to determine whether the consumer is authorized to purchase the work. If the proper authorization is given to the consumer, then control passes to step, **320**, otherwise control passes back to step **316**.

[**0041**] In step **320**, some or all of the protection that limits the copying and/or use of the work, if any, is disabled so that the authorized consumer may, at the least, play the audio/video work one or more times. For example, if the work was encrypted in step **310**, then in step **320** the work may be decrypted.

[**0042**] **FIG. 4** is a block diagram of a system **400**, according to one embodiment of the present invention, that can be used to implement the above methods, however, the above methods are not limited to this system or any particular system. System **400** receives and processes a broadcast audio/video data stream, which at a given point in time may include information corresponding to an audio/visual work (e.g., a song or video) and enables a consumer to purchase the audio/visual work. In one embodiment, system **400** includes a data stream processor **402**, storage device **404**, a persistent storage device **406**, a processing unit **408**, a transceiver **410**, and a user interface **412**.

[**0043**] Data stream processor **402** functions to receive a broadcast audio/video data stream **401**. There are numerous ways to receive a broadcast audio/video stream **401**, such as through analog and digital cable television systems, direct broadcast satellite systems, traditional analog TV and radio broadcasting systems, the Internet, etc. The present invention is not limited to any one such broadcast means or to any particular data stream format.

[**0044**] In one embodiment, data stream processor **402** includes a channel selector or tuner (hereafter "tuner") (not shown) for selecting a particular frequency, channel, station, or Internet address (hereafter "channel") over which audio/video stream **401** is broadcast. Once the channel selector selects the channel over which audio/video stream **401** is broadcast, audio/video stream **401** can be processed as described below.

[**0045**] Data stream processor **402** processes audio/video stream **401** to produce output audio/visual streams **430** and **440**. The format of the information in output stream **430** is such that it can be recognized and processed by conventional audio/visual reproducing equipment, such as a TV or stereo system.

[**0046**] The format of the information in output stream **440** can be the same as the broadcast format or the format of output stream **430** or it can be a different format altogether. For example, for audio information, the information in the second output stream can be encoded by processor **402** according to the MP3, Windows Media, Real Audio, or other like format. In one embodiment, the information in input stream **401** is in the Dolby AC-III format and the information in output stream **440** is in the Windows Media format. Thus, in this embodiment, data stream processor **402** includes the necessary software and/or hardware to convert a Dolby AC-III stream to a Windows Media stream.

[**0047**] The information in output stream **440** is stored into storage device **404**. Storage device **404** is preferably some form of random access memory (RAM) or other storage means useful for temporarily buffering data. In one embodiment, a digital rights management technology is used to copy and/or use protect the information stored in storage device **404**. For example, the information stored in storage device **404** may be encrypted. This feature aims to prevent the unauthorized copying and/or use of the information.

[**0048**] Data stream processor **402** is configured to analyze input stream **401** to determine the beginning and ending of the selections of audio/video works that make up input stream **401**. For example, in the case where input stream **401** is broadcast from a radio station or the like and, thus, consists primarily of a selections of songs, data stream processor **402** identifies the beginning and ending of each song in the input stream **401**. It is well within the ability of one having ordinary skill in the pertinent art to program data stream processor **402** to perform this identification function. In this way, data stream processor **402** is able to determine the beginning and/or ending of the audio/visual works stored in storage device **404**. Because the size of storage device **404** is limited, preferably only the current audio/visual work that is being received and the immediately previous audio/visual work are stored in storage device **404**. It should be noted that in some embodiments (e.g., those embodiments where the input stream is a digital signal), input stream **401** may contain metadata to identify the beginning and ending of each song as well as the artist and title of each song.

[**0049**] Continuing with the example above where input stream **401** is an audio stream broadcasted from a radio

station or the like, system **400** enables the consumer to purchase the current song being received by data stream processor **402**. Thus, system **400** enables impulse buying of songs. Further, the consumer can purchase a song without having to know the name of the artist or the title of the song.

[**0050**] To purchase the song or other work being processed by data stream processor **402**, the consumer simply sends a "buy" signal to processing unit **408** through user interface **412**. User interface **412** may include a "Purchase Song" push-button or menu item for this purpose. Alternatively, user interface **412** may include an infra-red detector for receiving signals sent from a remote control device that include a "Purchase Song" push button or other like means for enabling the consumer to indicate that he or she desires to purchase a song.

[**0051**] In one embodiment, upon receiving the buy signal, processing unit **408** communicates with an authorization system **480** to verify that the consumer may have access to the song. To accomplish this, processing unit **408** sends a purchase request message to authorization system **480** through transceiver **410**. Preferably, the purchase request message includes an identifier that is associated with an account of the consumer's. After receiving the message, authorization system **480** uses the identifier to access the consumer's account to determine whether the consumer is able to make the purchase or is otherwise permitted to have limited or full access to the song. For example, authorization system **480** may determine whether the consumer has sufficient funds in his or her account, has sufficient credit worthiness, or is permitted to obtain the song without making a payment.

[**0052**] If authorization system **480** determines that the consumer is able to make the purchase, authorization system **480** transmits a "purchase request accepted" message to processing unit **408** and then debits the consumer's account or charges his credit card, if required. If authorization system **480** determines that the consumer is not able to make the purchase, authorization system **480** transmits a "purchase request declined" message to processing unit **408**. Processing unit **408** receives messages from authorization system **480** through transceiver **410**.

[**0053**] If processing unit **408** receives the purchase request declined message, processing unit **408** displays to the consumer though user interface **412** a message indicating that the purchase request has been declined. Otherwise, if processing unit **408** receives the purchase request accepted message, processing unit **408** copies the encoded information corresponding to the purchased work from storage device **404** to persistent storage device **406**. If necessary, processing unit **408** may also disable some or all of the protection that limits the copying and/or use of the work so that the authorized consumer may, at the least, play the work one or more times.

[**0054**] It should be noted that prior to or shortly after copying the work from storage device **404** into a file on persistent storage device **406**, the processing unit **408** has the option of encoding the work according to a different encoding scheme. For example, if the music information in storage device **404** is encoded according to the DOLBY AC-III format, the processing unit may convert the music information to the Windows Media format, or some other format that provides data compression, prior to or shortly after storing the music information in persistent storage device **406**.

[**0055**] In another embodiment, after receiving the buy signal, processing unit **408** uses a digital rights management technology to copy and/or use protect the work stored in storage device **404** and stores the protected work in persistent storage device **406**. However, before the consumer can use the protected work stored on the persistent storage device **406**, authorization system **480** must first authorize the "purchase." That is, for example, the consumer will not be able to access the work without first getting a key from the authorization system **480** to decrypt the work if the work has been protected through encryption. The consumer can attempt to get the key from the authorization system **480** whenever it is convenient for the consumer. The authorization system **480** may or may not authorize the purchase as described above. In one embodiment, the consumer can communicate with the authorization system **480** to receive the key using a standard telephone or using a personal computer and the Internet.

[**0056**] Once the work is in persistent storage device **406** and the authorization system **480** has authorized the consumer, the consumer can use an audio/video playback system to play the work on a limited or unlimited basis, and thereby view and/or listen to the work.

[**0057**] In one embodiment, to play a purchased audio/visual work stored in persistent storage device **406**, the consumer first selects a particular work from the persistent storage device using user interface **412** and then provides a "play" signal to processing unit **408**. Upon receiving the play signal, processing unit **408** causes the encoded information corresponding to the work to be read out from storage unit **406** and causes data stream processor **402** to process it to produce an output stream **430**.

[**0058**] Therefore, the above described system **400** enables a consumer to purchase a desired selection of audio/video content at the time the desire to purchase the content is stimulated. System **400** also provides the consumer with instant access to the purchased content.

[**0059**] In an alternative method for allowing the consumer to purchase broadcast audio/video works that have been received and processed by stream processor **402**, processing unit **408** automatically stores in persistent storage device **406** all of the works in output data stream **440**. That is, all of the received works are stored in persistent storage device **406**, regardless of whether the consumer has sent a "buy" signal to the processor. Alternatively, the system may maintain a profile that is configurable by the consumer. In this alternate embodiment, processing unit **408** only stores in persistent storage device **406** each broadcast work received and processed by the data stream processor **402** that matches the profile. In either case, because the user has not been authorized prior to the works being stored in persistent storage device **406**, processing unit **408** preferably copy and/or use protects each work prior to or shortly after storing the work. These two embodiments allow the user to purchase a work days or weeks after it was received and processed by the data stream processor **402**.

[**0060**] Upon receiving an indication that the user desires to purchase a work, processing unit **408** presents to the user a list of the un-purchased works that are stored in persistent storage device **406**. If the user sees a work that he or she would like to buy, the user selects the work and then signals processing unit **408** that he or she wants to buy the selected

work. Processing unit **408** then communicates with authorization system **480** to verify that the user is able to purchase the work. If the user is verified, the user will be given full or limited access to the work so that the user can listen to or watch the work. That is, some or all of the copy and/or use protection that protects the work from unauthorized copying and/or use will be disabled.

[**0061**] **FIG. 5** illustrates another embodiment of a system **500** according to the present invention. Like system **400**, system **500** includes a data stream processor **502**, memory **504**, a persistent storage device **506**, a processing unit **508**, a transceiver **510**, and a user interface **512**.

[**0062**] A major difference between system **500** and system **400** is that data stream processor **502** is configured to simultaneously process two broadcasted audio/video streams: input stream **501** and input stream **503**. Input stream **501** and input stream **503** contain information corresponding to the same audio/visual work. However, in one embodiment, the information in stream **501** is formatted (i.e., encoded) differently than the information in stream **503**, and the information in stream **503** may be copy and/or use protected. For example, if the work being broadcast is an audio work (e.g., a song), then the information in stream **501** could be encoded according to the Dolby-ACIII format, whereas the same information in stream **503** could be encoded according to the Windows Media format, MP3 format, Real Audio format, or other like audio format, and may be encrypted.

[**0063**] In one embodiment, input stream **501** and input stream **503** are broadcast on separate channels. In this embodiment, data stream processor **502** includes two channel selectors (not shown). The first channel selector selects the particular channel over which input stream **501** is broadcast, and the second channel selector selects the particular channel over which input stream **503** is broadcast. Once the channel selectors select the channels over which streams **501** and **503** are broadcast, streams **501** and **503** can be processed as described further below.

[**0064**] In another embodiment, input stream **501** and input stream **503** are broadcast over the same channel. For example, input stream **501** could be interleaved with input stream **503** in the same broadcast signal. Thus, in this embodiment, data stream processor **502** does not need two channel selectors. However, data stream processor **502** is configured to extract input stream **501** and input stream **503** from the broadcast signal so that each stream can be processed separately, as described below.

[**0065**] Data stream processor **502** processes input stream **501** to produce output stream **530**. The format of the information in output stream **530** is such it that can be recognized and processed by conventional audio/visual reproducing equipment, such as a TV or stereo system. At the same time stream **501** is being processed to produce output stream **530**, data stream processor **502** stores in memory **504** the information from input stream **503**, as illustrated by output stream **540**.

[**0066**] Like data stream processor **402**, data stream processor **502** is configured so as to identify the beginning and ending of the audio/visual works that make up input stream **503**. In this way, data stream processor **502** is able to determine the beginning and/or ending of the songs stored in memory **504**.

[**0067**] Similarly, like system **400**, system **500** enables the consumer to purchase the current song being processed by data stream processor **502** or an un-purchased song stored in persistent storage device **506**. As described above, to purchase a song, the consumer sends a "buy" signal to processing unit **508** through user interface **512**. Upon receiving the buy signal, processing unit **508** performs the same processes as that described above with respect to processing unit **408** receiving the buy signal.

[**0068**] Also, like system **400**, system **500** can be programmed to store onto persistent storage device **506** all of the works (or only those works that meet a predetermined criteria) that are in output stream **504**, regardless of whether the consumer has sent a buy signal to system **500**. Preferably, in this embodiment, the works are copy and/or use protected before being stored onto persistent storage device **506** and the consumer must receive authorization from a trusted source (e.g., obtain a decryption key from the trusted source) in order to gain access to the works.

[**0069**] Although the data stream processor **402**/**502** is shown being separate from processing unit **408**/**508**, it is contemplated that they need not be separate units and that a powerful enough microprocessor could function as both.

[**0070**] While various embodiments/variations of the present invention have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments.

What is claimed is:

1. A system for enabling a consumer to purchase a broadcast audio/video work, comprising:

a data stream processor that receives a broadcast audio/video data stream and produces from said broadcast audio/video data stream a first audio/video output data stream and a second audio/video output data stream, wherein said broadcast audio/video data stream contains information corresponding to an audio/video work and said first audio/video output stream is in a format that can be recognized and processed by conventional audio/video reproducing equipment;

a storage device that stores data included in said second audio/video output data stream, wherein said data corresponds to said audio/video work; and

a user interface that enables a user of the system to input to the system an indication that said user desires to purchase said audio/video work.

2. The system of claim 1, further comprising a processing unit that receives said indication, wherein after receiving said indication, said processing unit determines whether said user is authorized to purchase said work.

3. The system of claim 2, wherein if said processing unit determines that said user is authorized to purchase said work, said data stored in said storage device that corresponds to said work is stored in a second storage device.

4. The system of claim 3, wherein said first storage device is a volatile storage device and said second storage device is a persistent storage device.

5. The system of claim 4, wherein said first storage device is a random access memory and said second storage device is a hard disk.

6. The system of claim 1, further comprising a protection means for copy and/or use protecting said data included in said second audio/video output data stream prior to said data being stored on said storage device.

7. The system of claim 6, wherein said storage device is a persistent storage device.

8. The system of claim 7, wherein upon receiving said indication that said user desires to purchase said audio/video work, the system determines whether said user is authorized to purchase said work.

9. The system of claim 8, wherein if the system determines that said user is authorized to purchase said work, the system disables the copy and/or use protection that protects the data that corresponds to said work and that is stored in said storage device.

10. The system of claim 1, wherein upon receiving said indication that said user desires to purchase said audio/video work, the system copy and/or use protects said data that corresponds to said audio/video work and stores said protected data in a second storage device.

11. The system of claim 10, wherein said first storage device is a volatile storage device and said second storage device is a persistent storage device.

12. A method for enabling a user to obtain a copy of a broadcast audio/video work, comprising the steps of:

receiving a broadcast data stream comprising the audio/video work;

storing the audio/video work in a storage device local to the user regardless of whether the user has indicated a desire to have the audio/video work stored in said storage device;

receiving an indication from the user that indicates that the user desires to purchase a copy of the audio/video work; and

processing the audio/video work stored in said storage device in response to the user indicating said desire to obtain the audio/video work.

13. The method of claim 12, wherein said storage device is volatile storage device.

14. The method of claim 13, wherein said storage device is random access memory.

15. The method of claim 13, wherein said step of processing the audio/video work comprises the step of storing the audio/video work onto a persistent storage device.

16. The method of claim 15, wherein said step of processing the audio/video work further comprises the step of compressing the audio/video work prior to storing it on said persistent storage device.

17. The method of claim 16, wherein the audio/video work consists entirely of audio information and the audio/video work is compressed according an audio compression scheme.

18. The method of claim 17, wherein said audio compression scheme is one of the Windows Media, MP3, or Real Audio compression scheme.

19. The method of claim 15, wherein said step of processing the audio/video work further comprises the step of copy and/or use protecting the audio/video work prior to or shortly after storing it on said persistent storage device.

20. The method of claim 13, wherein said step of processing the audio/video work comprises the step of verifying that the user is authorized to obtain a copy of the audio/video work.

21. The method of claim 20, wherein said step of processing the audio/video work further comprises the step of copying the audio/video work from said storage device to a persistent storage device if the user is authorized to obtain a copy of the audio/video work.

22. The method of claim 12, further comprising the step of compressing the audio/video prior to storing it in said storage device.

23. The method of claim 12, further comprising the step of copy and/or use protecting the audio/video work prior to or shortly after storing it onto said storage device.

24. The method of claim 23, wherein said storage device is a persistent storage device.

25. The method of claim 24, wherein said step of processing the audio/video work comprises the step of determining that the user is authorized to obtain a copy of the audio/video work.

26. The method of claim 25, wherein said step of processing the audio/video work further comprises the step of disabling the copy and/or use protection if the user is determined to be authorized to obtain a copy of the audio/video work.

27. A system for enabling a consumer to purchase a broadcast audio/video work, comprising:

means for receiving a first audio/video stream and a second audio/video stream, wherein said first audio/video stream comprises the broadcast audio/video work formatted according to a first encoding scheme and said second audio/video stream comprises the audio/video work formatted according to a second encoding scheme, wherein said first encoding scheme is different from said second encoding scheme;

storage means for storing the audio/video work formatted according to said second encoding scheme; and

user interface means for enabling the consumer to indicate that the consumer desires to obtain a copy of the audio/video work.

28. The system of claim 27, wherein said means for receiving said first audio/video stream and said second audio/video stream comprises a first tuner for receiving said first audio/video stream and a second tuner for receiving said second audio/video stream.

29. The system of claim 27, wherein said means for receiving said first audio/video stream and said second audio/video stream comprises one tuner for receiving both of said first and said second audio/video streams.

30. The system of claim 27, further comprising a processing unit that communicates with an authorization system for determining whether the consumer is authorized to obtain a copy of the audio/video work, wherein said processing unit communicates with said authorization system in response to the consumer indicating that the consumer desires to obtain a copy of the audio/video work.

31. The system of claim 30, wherein said processing unit processes the audio/video work stored in said storage means in response to receiving from said authorization system an indication that the consumer is authorized to obtain the audio/video work.

32. The system of claim 31, wherein said processing unit stores onto a persistent storage device a copy of the audio/video work stored in said storage means in response to receiving from said authorization system said indication.

33. The system of claim 32, wherein said storage means is a volatile storage is device.

34. The system of claim 33, wherein said volatile storage device comprises random access memory.

35. The system of claim 27, further comprising a processing unit that processes the audio/video work stored in said storage means in response to the consumer indicating that the consumer desires to obtain a copy of the audio/video work.

36. The system of claim 35, wherein said processing unit stores onto a persistent storage device a copy and/or use protected copy of the audio/video work stored in said storage means in response to the consumer indicating that the consumer desires to obtain a copy of the audio/video work.

37. The system of claim 27, wherein the audio/video work stored in said storage means is copy and/or use protected.

38. The system of claim 37, wherein said storage means is a persistent storage device.

39. The system of claim 38, wherein said persistent storage device is a hard disk.

40. A method for enabling a consumer to purchase a broadcast audio/video work, comprising:

receiving a first audio/video stream and a second audio/video stream, wherein said first audio/video stream comprises the audio/video work formatted according to a first encoding scheme and said second audio/video stream comprises the audio/video work formatted according to a second encoding scheme, wherein said first encoding scheme is different from said second encoding scheme;

storing the audio/video work formatted according to said second encoding scheme in a storage device; and

enabling the consumer to indicate that the consumer desires to obtain a copy of the audio/video work.

41. The method of claim 40, wherein said first audio/video stream is received by a first tuner and said second audio/video stream is received by a second tuner.

42. The method of claim 40, wherein a single tuner receives both of said first audio/video stream and said second audio/video stream.

43. The method of claim 40, further comprising the step of determining whether the consumer is authorized to obtain a copy of the audio/video work in response to the consumer indicating that the consumer desires to obtain a copy of the audio/video work.

44. The method of claim 43, further comprising the step of processing the audio/video work stored in said storage device in response a determination that the consumer is authorized to obtain the audio/video work.

45. The method of claim 44, wherein said step of processing the audio/video work stored in said storage device comprises the step of storing onto a persistent storage device a copy of the audio/video work stored in said storage device.

46. The method of claim 45, wherein said storage device is a volatile storage device.

47. The method of claim 46, wherein said volatile storage device comprises random access memory.

48. The method of claim 40, further comprising means the step of processing the audio/video work stored in said storage device in response to the consumer indicating that the consumer desires to obtain a copy of the audio/video work.

49. The method of claim 48, wherein said step of processing the audio/video work stored in said storage device comprises the step of storing onto a persistent storage device a copy and/or use protected copy of the audio/video work stored in said storage device.

50. The method of claim 40, further comprising the step of copy and/or use protecting the audio/video work prior to storing it in said storage device.

51. The method of claim 50, wherein said storage device is a persistent storage device.

52. The method of claim 51, wherein said persistent storage device is a hard disk.

53. A method for enabling a user to purchase a copy of a broadcast audio/video work, comprising the steps of:

receiving a broadcast data stream comprising the audio/video work;

storing the audio/video work in a storage device local to the user regardless of whether the user has indicated a desire to have the audio/video work stored;

providing a user interface for enabling a user to indicate that the user desires to purchase an audio/video work stored on said local storage device; and

in response to the user indicating said desire to purchase an audio/video work, presenting to the user a list of un-purchased audio/video works that are stored on said local storage device; and

enabling the user to select on or more of said listed un-purchased audio/video works.

54. The method of claim 53, further comprising the step of copy and/or use protecting the audio/video work prior to storing the audio/video work in said storage device.

55. The method of claim 54, further comprising the step of determining an un-purchased audio-video work selected by the user and verifying that the user is authorized to purchase said selected audio/video work.

56. The method of claim 55, further comprising the step of decrypting said selected audio/video work if the user is determined to be authorized to purchase said selected audio/video work.

57. The method of claim 53, further comprising the step of compressing the audio/video work prior to storing the audio/video work in said storage device.

58. The method of claim 53, further comprising the step of creating an output data stream from said broadcast data stream and providing said output data stream to conventional audio/video reproducing equipment.

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